

We Claim:

- 1 1. An electrical interface, comprising:
2 a primary inductor and a secondary inductor for operably coupling an input
3 differential signal pair to an output differential signal pair, and
4 a filter that attenuates a signal occurring in the output differential signal pair.
- 1 2. The interface according to claim 1, wherein the filter acts as a low-
2 pass filter and wherein the electrical interface further includes a high-pass filter, the low-pass
3 filter and the high-pass filter having overlapping cut-off frequencies.
- 1 3. The interface according to claim 2, wherein the low-pass filter and the
2 high-pass filter together attenuate signals over a frequency range of approximately 50 kHz to
3 approximately 10 MHz.
- 1 4. The interface according to claim 1, wherein the primary inductor is
2 connected between two signal paths forming the input differential signal pair.
- 1 5. The interface according to claim 4, wherein the primary inductor
2 forms the primary winding of a transformer.
- 1 6. The interface according to claim 5, wherein the secondary inductor is
2 connected between two signal paths forming the output differential signal pair and wherein
3 the secondary inductor forms the secondary winding of the transformer.
- 1 7. The interface according to claim 1, further including a parasitic
2 capacitor operably coupled between the primary inductor and the secondary inductor.
- 1 8. The interface according to claim 7, wherein the parasitic capacitor has
2 a capacitance is in the range of approximately 0.5 pF to approximately 2.5 pF.
- 1 9. The interface according to claim 1, wherein the filter includes an
2 output attenuation element for operably coupling a signal path of the output differential
3 signal pair to ground.
- 1 10. The interface according to claim 9, wherein the output attenuation
2 element includes a resistor and a capacitor connected in parallel.

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1 11. The interface according to claim 9, wherein the output attenuation
2 element forms a low-pass filter.

1 12. The interface according to claim 1, further including an input
2 attenuation element operably coupled to at least one of the signal paths forming the input
3 differential signal pair.

1 13. The interface according to claim 12, wherein the input attenuation
2 element includes a resistor and a capacitor connected in series.

1 14. The interface according to claim 12, wherein the input attenuation
2 element forms a high-pass filter.

1 15. The interface according to claim 1, wherein the filter attenuates a
2 common mode signal in the output differential signal pair.

1 16. The interface according to claim 1, wherein the interface is adapted for
2 being operably coupled between a codec and a digital circuit.

1 17. The interface according to claim 1, wherein the interface further
2 includes a codec that generates two signal paths that together form the input differential
3 signal pair.

1 18. The interface according to claim 17, further including an analog front
2 end for operably coupling the codec to a telephone line.

1 19. The interface according to claim 18, wherein the analog front end
2 includes circuitry for providing power to the codec from the telephone line.

1 20. The interface according to claim 18, wherein the analog front end
2 includes a shunt regulator.

1 21. An electrical interface, comprising:
2 inductive means for operably coupling an input differential signal pair to an
3 output differential signal pair, and
4 filter means for attenuating a signal occurring in the output differential signal
5 pair.

1 22. The interface according to claim 21, wherein the filter means
2 attenuates high-frequency signals and wherein the electrical interface further includes a high-
3 pass filtering means for attenuating low-frequency signals, the filter means and the high-pass
4 filtering means having overlapping cut-off frequencies.

1 23. The electrical interface according to claim 21, wherein the inductive
2 means is a transformer.

1 24. The electrical interface according to claim 21, wherein the inductive
2 means includes a parasitic capacitor.

1 25. The interface according to claim 21, wherein the filter means includes
2 an output attenuation element for operably coupling a signal path of the output differential
3 signal pair to ground.

1 26. The interface according to claim 25, wherein the output attenuation
2 element includes a resistor and a capacitor connected in parallel.

1 27. The interface according to claim 25, wherein the output attenuation
2 element forms a low-pass filter.

1 28. The interface according to claim 21, further including an input
2 attenuation means for attenuating low-frequency signals, the input attenuation means being
3 operably coupled to at least one of the signal paths forming the input differential signal pair.

1 29. The interface according to claim 12, wherein the input attenuation
2 element includes a resistor and a capacitor connected in series.

1 30. A method of interfacing an input differential signal pair to an output
2 differential signal pair, the method comprising:

3 inductively coupling the input differential signal pair to an output differential
4 signal pair, and

5 filtering out a common mode signal occurring in the output differential signal
6 pair.

1 37. The method according to claim 30, further including the step of
2 attenuating low-frequency signals in the input differential signal pair.